PSP Cover Sheet

	RSHED ASSESSMENT
Applicant Name: FOSTER WHEELER	ENVIRONMENTAL CORPORATION
Mailing Address: 3947 LENNANE AV	E SACAMENTO CA 95834
Talenhone: 916-928-4700	
Fax: 916-928-0594	
Email: LSPRAGUE @ TWENC	, com
Amount of funding requested: \$ 500,502	.48 for 1 years
Indicate the Topic for which you are applying	(check only one box).
□ Fish Passage/Fish Screens	D Introduced Species
□ Habitat Restoration	□ Fish Management/Hatchery
Local Watershed Stewardship	□ Environmental Education
□ Water Quality	
- Marie Quantity	
Does the proposal address a specified Focused	Action?yesno
What county or counties is the project located	in? NEVRDA, YUBA
•	
Indicate the geographic area of your proposal	(check only one box):
□ Sacramento River Mainstem	□ East Side Trib:
Sacramento Trib: YUBA RIVER	□ Suisun Marsh and Bay
San Joaquin River Mainstern	□ North Bay/South Bay:
San Joaquin Trib: Delta:	☐ Landscape (entire Bay-Delta watershed)
Delta:	Other:
,	
Indicate the primary species which the propos	
D San Joaquin and East-side Delta tributari	es fall-run chinook salmon
 Winter-run chinook salmon 	➢ Spring-run chinook salmon
□ Late-fall run chinook salmon	Fall-run chinook salmon
□ Delta smelt	□ Longfin smelt
□ Splittail	Steelhead trout
☐ Green sturgeon	□ Striped bass
□ Migratory birds	□ All chinook species
Other:	☐ All anadromous salmonids
Specify the ERP strategic objective and target	(s) that the project addresses. Include page
numbers from January 1999 version of ERP \	/olume I and II:
CENTRAL VALLEY STREAM TEN	1P., VOL. II, p. 297 TARGET 1
FRESH WATER FISH RABITAT,	181. IT, p. 299, TARGET 1
GOARSE SEDIMENT SUPPLY	VOL. II. P. 295, TARGET 4

Indi	icate the type of applicant (check only one	box):	
	State agency		Federal agency
	Public/Non-profit joint venture		Non-profit
	Local government/district		Private party
	University	×	Other: PROFIT ORGANIZATION
Indi	icate the type of project (check only one bo	x):	
M	Planning		Implementation
	Monitoring		Education
	Research		

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

G. LYNN SPRAGUE

Printed name of applicant

Signature of applicant

II. Title Page

YUBA RIVER WATERSHED ASSESSMENT

Applicant:

Foster Wheeler Environmental Corporation 3947 Lennane Drive, Suite 200 Sacramento, CA 95834-1957

> Contact: Lynn Sprague Telephone: (916) 928-4700 Fax: (916) 928-0594 Email: lsprague@fwenc.com

with participation from

Tahoe National Forest, South Yuba River Citizens League

Type of Organization and Tax Status:

Tax Identification Number: 75-2512450

RFP Project Group Type: Watershed Stewardship

April 16, 1999

III. Executive Summary

- **A. Project Title and Applicant Name -** The Yuba River Watershed Assessment Program (Watershed Assessment Program) is submitted by Foster Wheeler Environmental Corporation, the Tahoc National Forest and the South Yuba River Citizens League.
- B. Project Description and Biological/Ecological Objectives The Watershed Assessment Program (WAP) will consist of conducting a watershed assessment for the Yuba River in Nevada and Yuba counties to determine the ecological health of the watershed with emphasis on determining resource values for the salmon and steelhead populations of the lower Yuba River. The assessment will focus on describing and evaluating the existing conditions and processes that affect the aquatic habitat and water quality of the upper Yuba River watershed (including Middle Fork, South Fork, Deer Creek, and Dry Creek) and determining how the upper watershed affects salmon and steelhead habitat in the lower river and potential habitat in the upper river above Englebright Dam. The watershed assessment will provide an evaluation of the various stressors (both natural and human) in the upper watershed.
- C. Approach/Tasks/Schedule The approach for the WAP will be to identify key habitat parameters that affect fish production, then to assemble information on these parameters including current conditions and primary influences or stressors affecting the parameters. The spatial distribution of degraded areas within the watershed that exhibit unhealthy conditions relative to aquatic habitat and water quality will be highlighted, and recommendations will be developed for restoring healthy conditions, improved production, and high survival rates for salmon and steelhead in the Yuba River. The Yuba River WAP is envisioned as a 1-year effort. The following tasks describe the application of this approach to the Yuba River WAP: Task 1. Provide for public involvement; Task 2. Develop GIS Database; Task 3. Conduct Watershed Assessment; Task 4. Prepare Final Report; and Task 5. Project Management.
- **D. Justification for Project and Funding by CALFED** Parameters addresses in this project are directly related to anadromous fish habitat in the lower Yuba River and its tributaries. With the overview of stressors and conditions, watershed improvement projects can be strategically targeted. Once implemented, watershed restoration project will lead to improvements in salmon and steelhead populations, as well as in riparian and wetland habitats, forest health, water quality, and quality of life. Because the WAP deals with hydrology and sediment, it will have direct effects on flood control, water supply, and water quality of the Bay-Delta system, thereby forwarding CALFED goals.
- E. Budget/Cost and Third-Party Impacts The estimated cost of the WAP is \$500,502.48. While the project will have no direct third-party impacts, it is conceivable

that information collected, analyzed, and presented could be used in the future to control, restrict, or take action on a specific use in the watersheds studied.

- F. Applicant Qualifications The Yuba River WAP will be conducted by Foster Wheeler Environmental Corporation, a international environmental consulting firm with West Coast offices in Sacramento, Costa Mesa, San Diego, Portland, and Scattle. Foster Wheeler staff are experienced in hydrology, geology and geomorphology, aquatic ecology and fisheries, riparian habitat, stream channel assessment, water quality, terrestrial vegetation, GIS, and use of watershed assessment techniques such as the Washington Department of Natural Resources "Standard Methodology for Conducting Watershed Analysis" and the federal "Ecosystem Analysis at the Watershed Scale," as well as in designing watershed- and project-specific assessment procedures.
- G. Monitoring and Data Evaluation A limited amount of monitoring is proposed to obtain some essential information to develop the framework of the assessment. The project is designed to evaluate watershed conditions which will provide baselines for monitoring efforts. The project will collect available data on all key watershed conditions, parameters, and stressors. Information will be obtained from agencies, universities, and other sources via the internet, libraries, and direct contacts. GIS data on the watershed will be obtained from the agencies, universities, and other available sources. Peer review on the project reports will be sought by soliciting comments from state and federal resource agencies and local government and watershed stewardship, as well as from local stakeholder groups, environmental organizations, and the public.
- H. Local Support/Coordination with Other Programs/Compatibility with CALFED Objectives - The proposed WAP will be coordinated with and will provide critical information and analyses to other restoration and water quality improvement projects being undertaken in other portions of the watershed. Stakeholder groups conducting these programs were previously funded through watershed stewardship grants from CALFED, Proposition 204, EPA, and other programs. Such efforts include the Yuba Watershed Protection/Restoration Project (Yuba County), the Coordinated Yuba River Watershed Health Improvement and Monitoring Project (North San Juan Fire Protection District), the South Yuba River Coordinated Watershed Management Plan Project (Department of Parks & Recreation, and the Englebright Working Group effort to assist CALFED regarding the possible reintroduction of salmon and steelhead in the upper watershed. Information on this program has also been supplied to individuals in the Nevada County Resource Conservation District (Nevada County), the Yuba County Resource Conservation District and the Yuba Watershed Council (Yuba County), the Camptonville Proposition 204 Committee, and the Lower Yuba River Technical Working Group.

IV. Project Description

Proposed Scope of Work. The project will include conducting a watershed assessment for the Yuba River in Yuba and Nevada counties (Figure 1). A watershed assessment is a procedure used to characterize the human, aquatic, riparian, and terrestrial features, conditions, processes, and interactions within a watershed. The process will be issuedriven. In this project, the issues of focus will be the salmon and steelhead populations in the Lower Yuba River. This watershed assessment will (1) describe and evaluate the existing conditions and processes that affect the aquatic and riparian habitat and water quality of the Yuba River watershed system and (2) will indicate how the upper watershed affects salmon and steelhead habitat in the lower river, as well as potential habitat in the upper reaches if they are ever reintroduced to the watershed above the Englebright Dam. The geographic extent of this watershed assessment will be the Upper Yuba River watershed (including the Middle Fork, South Fork, Deer Creek, and Dry Creek).

Streamflow pattern and water quality (particularly suspended sediment and temperature), as well as coarse sediment transport or trapping in reservoirs, affect habitat quality throughout the entire basin. These effects are especially noticeable downstream where they impact salmon and steelhead populations and their habitat in the Lower Yuba River. The watershed assessment will also provide an evaluation of the various stressors (both natural and human) in the upper watershed that have in the past and continue to affect streamflow pattern and water quality throughout the system. These stressors will include, but not be limited to, dams, urban development, forest management practices and forest succession, agricultural practices, past and present mining practices, road construction and maintenance, and natural factors such as floods, soil erosion, and fire.

The assessment will rely on available information and, where information is deficient, will indicate what specific information is lacking to fully develop the assessment. The assessment will be GIS-based and will both integrate and augment existing GIS-based information sources available for the Yuba River.

The assessment will address key questions of resource agencies and Yuba watershed stakeholders about the future of the watershed, its watershed processes, aquatic habitats, and the potential for protecting, enhancing, and restoring healthy watershed processes and reducing stressors. The assessment will be closely coordinated with existing watershed planning studies for the Yuba River and its upper tributaries (i.e., South Fork Yuba River).

Tasks contributing to the watershed assessment will include preparation of a GIS database of watershed conditions and stressors, characterizing existing watershed health, assessing and prioritizing restoration potential, coordinating with local groups, and

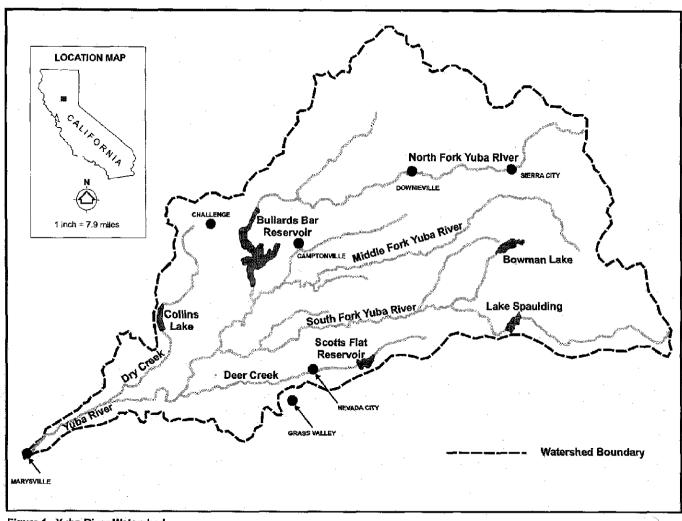


Figure 1. Yuba River Watershed

defining additional information needs. The watershed assessment will incorporate the following approach:

Identify key habitat parameters that affect fish production.

Assemble information on key parameters.

Identify the current or existing condition of key parameters and determine the key influences or stressors on these parameters.

Assess the likely effects of the influences/stressors on key parameters in the context of aquatic habitat and water quality.

Identify areas in the watershed exhibiting and contributing unhealthy conditions.

Develop recommendations for restoring healthy conditions in the watershed that will lead to improved production and survival of salmon and steelhead in the Yuba River. The following describes the overall approach in more detail.

Task 1. Public Involvement. Inform local governments, the public, and stakeholder groups in the watershed as to what a watershed assessment is, how it is being conducted, and how they can participate and provide input. Opportunities such as public meetings and workshops will be advertised by telephone, newsletter, newspaper, and informal meetings. These public meetings and workshops will be conducted to discuss project purpose, goals, and objectives, details of the assessment, and recommendations, as well as to solicit information and input from interested parties and stakeholders.

Task 2. Develop GIS Database

The first phase of this task would be to develop a GIS database for the upper watershed (i.e., South and Middle Forks, Deer Creek, and Dry Creek). This database will store the existing information that the watershed assessment will use. Key parameters affecting health and indicators of watershed health include the following:

Physical and chemical attributes (including soils and slope)

Precipitation

Topography (elevation, etc)

Condition of riparian vegetation

Terrestrial vegetation (e.g., grassland, forest type and condition, degree of cover);

Stream drainage system

Available water quality data (e.g., water temperature, suspended sediments, nutrients, metals, etc.).

Major stressors that may affect habitat would also be identified:

Dams and diversions

Impervious surface area

Roads

Population density

Land use and general plan designations

Fire

The GIS database will be developed from existing sources (Tahoe National Forest, California Department of Forestry and Fire Protection, California Department of Fish and Game, Environmental Protection Agency, Nevada County, and U.S. Geological Survey).

Task 3. Conduct Watershed Assessment

This task will consist of three subtasks: (1) conduct a hydrologic analysis; (2) assemble water quality, sediment, and watershed condition information; and (3) perform the watershed and stressor assessment. These subtasks are described below.

Task 3a. Conduct Hydrologic Analysis: Collect and evaluate the existing hydrologic conditions of the watershed based on data from existing gauging stations to determine the current state of watershed health (i.e., annual hydrograph, peak flows, low flows, flow flashiness); extrapolate existing gage data to ungauged subwatersheds to assess their relative health conditions.

Task 3b. Assemble Water Quality, Sediment, and Watershed Condition Information: This subtask will consist of characterizing water quality in the watershed, particularly water temperature and suspended sediment. It will also include a description of the coarse sediment conditions of the watershed based on hydraulic mining debris input locations and published information on the watershed. The latter will include information on how the coarse debris has moved through and been stored in the system, stream channel responses, riparian and terrestrial vegetation conditions, fire history, and mass movement events. This published information will include scientific papers, government reports, and unpublished reports such as Federal Energy Regulatory Commission licensing documents. In addition, technical specialists with experience in the watershed will be interviewed to compile unpublished but pertinent information on watershed conditions.

Task 3c. Perform Watershed Health Assessment: This subtask will involve using the GIS database and hydrologic analysis to quantitatively and qualitatively evaluate watershed health. The first part of the assessment will consist of producing and presenting information on key watershed parameters and stressors in tabular form. The second part

of the assessment will consist of a statistical analysis of key parameters to identify which stressors in the system correlate with existing unhealthy conditions. The third part of the assessment will be an integration of this quantitative data with the information assembled in subtask 3b (Figure 1).

Figure 1. List of Items Included in the Watershed Assessment

- > Description of existing level of disturbance in watersheds and watershed units
- Description of geomorphological and other features that indicate potential responses of stream reach to disturbance; i.e., which streams are susceptible to damage from watershed factors whether natural or human caused;
- Evaluation of streams in the context of their watershed and landscape level characteristics over varying scales of space and time
- Description of riparian habitat condition and continuity in watersheds and watershed units and its relationship to aquatic habitat quality
- Evaluation of interactions among elements and overall watershed health
- Evaluation of watershed and watershed unit sensitivity to urbanization
- Comparison of habitat conditions for all watershed units; ranking of watersheds by a watershed health index based on developed information
- Description of natural and human caused attributes of watershed and watershed units that affect (or would affect) salmon and steelhead passage and spawning and rearing habitat
- Description of existing level of habitat degradation and restoration potential of watersheds and watershed units
- Assessment and description of restoration potential of watersheds and watershed units with respect to the identified conditions of the watersheds and their relationship to evaluated stressors
- > Evaluation of conditions worthy of treatment and those that are not; and
- Identification of additional information needs

Task 4. Prepare Final Report.

The final report will consist of a compendium of data, hydrographs, and maps with basic explanatory text and description of the analyses and discussion of analytical results. The report will be oriented toward the general reader and will serve as a comprehensive guide to the conditions of the watershed and the stressors responsible for that condition. It will

be designed to provide technical assistance for those conducting local watershed planning, monitoring, and restoration activities.

Task 4a. Prepare Review Draft: The first draft of the final report will be prepared and distributed to the various stakeholders and to CALFED. Meetings will be held with CALFED watershed program staff to receive technical comments. Public meetings would be held to receive stakeholder comments on the analysis.

Task 4b. Prepare Final Document: The draft document will be revised based on CALFED and public comments. The budget includes the printing and distribution of 50 copies of the document.

Task 5. Project Management

The staff of SYRCL and the Nevada County RCD and their partner Foster Wheeler Environmental, will conduct project management activities, including task order contracting, budget management, project oversight, agency and stakeholder communications, and task coordination activities,

B. Location and/or Geographic Boundaries of the Project - The Yuba River watershed drains approximately 1,300 square miles of the western Sierra Nevada slope and includes portions of Sierra, Placer, Yuba, and Nevada counties. As a tributary to the Feather River, which, in turn, feeds into the Sacramento River, the Yuba is considered part of the Feather River/Sutter Basin Ecological Zone. Major tributaries of the Yuba River system that will be considered in this assessment include the Middle and South Forks of the Yuba River, Deer Creek, and Dry Creek. Flows on the Middle and South Forks go through Englebright Lake. Although the upper reaches of Deer and Dry creeks have reservoirs, the creeks drain directly to the lower Yuba River. The Sierra County portion of the watershed will not be evaluated because of the effects of the Bullards Bar Reservoir.

C. Ecological/Biological Benefits

Ecological/Biological Objectives. The proposed project has the following primary ecological objectives: (1) assess the health of watershed especially relative to producing salmon and steelhead; (2) develop recommendations for restoring watershed health; and (3) contribute to the protection and enhancement of salmon and steelhead populations of the Yuba River.

Project Need - Several watershed-related projects are being proposed or initiated on the Yuba River system. However, there is no watershed-wide evaluation of basin processes and conditions that relate directly to assessing watershed health as it pertains to supporting salmon and steelhead populations. The proposed project will identify problem areas and recommend potential solutions as well as guiding and helping set priorities for solutions. Watershed assessments are prescribed in many regional plans prepared by the

U.S. Forest Service, BLM, the California Department of Forestry; recovery plans prepared for endangered species, and plans prepared for wild and scenic river status review for the Yuba River, and the Sierra Nevada Ecosystem Project (SNEP), as well as the CALFED Watershed and Ecosystem Restoration Programs.

Four very important habitat factors affecting salmon and steelhead are the streamflow regime, the suspended sediment level, the water temperature, and gravel recruitment. How watershed conditions affect these factors in the Yuba watershed is essential to protecting and restoring salmon and steelhead populations in the Yuba River. A healthy watershed will retain runoff to a certain extent and more gradually release it to streams and rivers. Suspended sediment levels will remain below levels that are detrimental to salmon and steelhead eggs developing in gravel spawning beds. Water temperatures will not get too warm to sustain adult and juvenile salmon and steelhead from the spring through the fall. Enough gravel will enter the system to provide adequate spawning habitat for salmon and steelhead. The project will focus on the processes that control these factors in the Yuba watershed.

Expected Benefits - The project will identify the existing physical, chemical, and biological components of the watershed that are related to aquatic habitat conditions (hydrology, water quality, and coarse and fine sediment transport). The assessment will identify the relationships between individual watershed components and the existing stressors on those watersheds. The compilation of these parameters and the quantification of the relationships between watershed condition and associated stressors will provide the fundamental basis for addressing basin-wide conditions that affect water quality and aquatic habitat. These parameters are directly related to anadromous fish habitat in the lower Yuba River and its tributaries. With this overview understanding of stressors and conditions, watershed improvement projects can be strategically targeted. Once implemented, watershed restoration project will lead to improvements in salmon and steelhead populations, as well as in riparian and wetland habitats, forest health, water quality, and quality of life.

Primary Stressors – The primary stressors in the watershed that will be addressed by the study are urban development, farming and ranching activities, roads, forest management practices, water management, dams, diversions, floods, droughts, catastrophic fire, soil conditions, mass wastings (hillside slumping), mining, off-road vehicles, and other human activities.

Primary Species – Primary species are Spring- and fall-run chinook salmon, steelhead, native resident fish species, and other riparian and aquatic species.

Adaptive Management Framework and Ecosystem Approach – The watershed assessment will contribute to an adaptive management approach to solving watershed problems by

providing important information to restoration programs and allowing focus on key factors that affect watershed health.

Linkages - The Yuba River watershed assessment will provide critical information and analyses in support of the restoration and water quality improvement work being undertaken in portions of the watershed by stakeholder groups previously funded through watershed stewardship grants from CALFED, Proposition 204, EPA, and other programs. These projects include the following:

The Yuba County Yuba Watershed Protection/Restoration Project, funded by Proposition 204 to address forest health, reduction of contaminants, and reduction of sedimentation in the lower Yuba River watershed

The North San Juan Fire Protection District Coordinated Yuba River Watershed Health Improvement and Monitoring Project, funded by Proposition 204 to achieve coordinated watershed planning, implementation of water quality improvement, and comprehensive water and soil quality monitoring in the Yuba River above Englebright Dam

The Department of Parks & Recreation South Yuba River Coordinated Watershed Management Plan Project, funded by CALFED's Bay-Delta Ecosystem Restoration Projects and Programs May 1998 funding cycle

The Englebright Working Group effort to assist CALFED in identifying necessary technical and feasibility studies regarding possible reintroduction of salmon and steelhead in the upper watershed

System-wide Ecosystem Benefits - Because this project's purpose is to identify the primary stressors resulting in degraded water quality and aquatic habitat conditions, it will have direct system-wide ecosystem benefits. The lower Yuba River and its Deer and Dry creek tributaries provide habitat for chinook salmon and steelhead. Additionally, the amount and quality of Yuba River water draining into the Feather River has both direct and indirect effects on water quantity and quality all the way downstream into the Bay-Delta. By providing a comprehensive means to understand and approach this major river system, the proposed project will be beneficial to all components of the CALFED program.

D. Compatibility with Non-ecosystem Objectives – Because the project deals with hydrology and sediment it will have direct effects on flood control, water supply, and water quality of the Bay-Delta system. The project should help toward meeting objectives of each of these components of the CALFED program.

D. TECHNICAL FEASIBILITY AND TIMING

Other approaches to watershed assessment considered would be similar but would require an intensive field component. This degree of field investigation was considered to be too intensive at this time because of the lack of an overall understanding of the basin conditions, the basin size, and the time that would be required to perform this work. The approaches proposed here, however, are similar to standard watershed assessment techniques that have been applied in many watersheds on the west coast and elsewhere. They are similar to the Washington Department of Natural Resources "Standard Methodology for Conducting Watershed Analysis," and the federal "Ecosystem Analysis at the Watershed Scale," the "Draft Oregon Watershed Assessment of Aquatic Resources Manual (January 1999)," and the Watershed Protection and Restoration Council's "Protecting California's Anadromous Fisheries (December 1998)." They are also consistent with recommendations of the Sierra Nevada Ecosystem Project. Foster Wheeler Environmental has conducted a variety of watershed assessments and analyses using similar techniques.

Although this project is primarily a compilation and analysis process, local stakeholder concerns will be essential. It is likely that some stakeholders will be concerned about the analyses' implications for their uses of the watershed. The solution is to involve these stakeholders in the process and to keep it open, technically oriented, and neutral. These stakeholder concerns are real, however, and the issues already exist and are being addressed as indicated by projects already funded in the watershed (see Linkages). Consequently, a watershed perspective to these issues is the best way of addressing them. This methodology provides a technically comprehensive approach to understanding and addressing watershed issues. Because the methodology is comprehensive, however, it also demonstrates to stakeholders that no individual group is being singled out and everyone will be involved in developing solutions.

Finally, the project is designed to identify problems and solutions, not implement solutions. Implementation is the charge of existing and future watershed stewardship planning and implementing programs and programs being undertaken by resource management agencies. NEPA and CEQA documentation or other permitting will not be required for this project.

E. MONITORING AND DATA COLLECTION METHODOLOGY

A limited amount of monitoring is proposed to obtain some essential information to develop the framework of the assessment. The project is not designed to monitor watershed conditions, but will identify information needs. The project will collect available data on all key watershed conditions, parameters, and stressors. Information will be obtained from agencies, universities, and other sources via the internet, libraries, and direct contacts. GIS data on the watershed will be obtained from the agencies,

universities, and other available sources. All data will be stored in a GIS ARC-INFO and ARC-VIEW system.

Peer review will be sought on the project report by soliciting comments from state and federal resource agencies and local watershed stewardship groups. Comments and input will be sought from state, federal, and local government and resource agencies, as well as local stakeholder groups, local and state environmental organizations, and the public.

F. LOCAL INVOLVEMENT

Dennis Poller in Nevada County and Pat Ward in Yuba County have been notified of this project. Copies of the notification letters are attached.

Other groups that are aware of the project are the Nevada County Resource Conservation District, the Yuba County Resource Conservation District, the Yuba Watershed Council, and the Bureau of Land Management. These groups are not presently expressing support for the project.

While the project will have no direct third-party impacts, it is conceivable that information collected, analyzed, and presented could be used in the future to control, restrict, or take action on a specific use in the watersheds studied. Such actions, consequences, and effects would be considered in ongoing and future watershed planning, restoration, and stewardship programs.

G. COST

Budget - Costs are presented by task in Table 1. A sample quarterly budget is provided in Table 2. CALFED funding is necessary to conduct the proposed work. Other grant programs from CALFED, the Proposition 204 Watersheds Program, and other programs will provide essential information to this study.

Table 1. Sample Total Budget (CALFED funds only)

Task	Direct	Direct Salary	Service	Material	Misc. and	Overhead	Total Costs
	Labor	and Benefits	Con-	and	other	and	
	Hours		tracts	Acquisition	Direct costs	Indirect	
İ		Ì		Costs		Costs	
1	432	12,961.05		1,950.00	3,538.00	21,505.35	39,954.40
2	1,264	34,570.88	-	7,500	4,833.60	57,245.80	104,150.28
3	2,356	70,624.67		1,900	14,349.00	116,499.78	203,373.45
4	1,590	45,534.25	-	6,500	10,568.00	75,441.15	138,043.40
5	124	4,739.85		300	2,059.00	7,882.10	14,980.95

Table 2. Sample Quarterly Budget

Task	Quarterly Budget Oct-Dec 99	Quarterly Budget Jan-Mar 00	Quarterly Budget Aug-Jun 00	Quarterly Budget Jul-Sep 00	Quarterly Budget Oct-Dec 00	Total Budget
1	13,984.04	9,988.6	7,990.88	7,990.88		39,954.40
2	52,075.14	52,075.14				104,150.28
3	40,674.69	40,674.69	81,349.38	40,674.69		203,373.45
4				138,043.40		138,043.40
5	3,745.24	3,745.24	3,745.24	3,745.24		14,980.95

Schedule

The proposed project is planned as a one-year project.

Task 1: Schedule: All quarters. Deliverables: potential and final stakeholder lists, facilitation methodology report, newsletters, technical memorandums, meeting handout materials.

Task 2: Schedule: Quarters 1 and 2. Deliverables: List of data sources. Electronic file of data layers used and generated. Data dictionary of layers used.

Task 3a: Schedule: Quarters 1 and 2. Deliverables: Compendium of analyses completed. For final deliverable see task 5b.

Task 3b: Schedule: Quarters 1, 2, and 3. Deliverables: Bibliography of materials assembled. For final deliverable, see task 5b.

Task 3c: Schedule: Quarters 3 and 4. Deliverables: Progress reports on synthesis of materials and information from tasks 3a and 3b. For final deliverable, see task 5b.

Task 4a: Schedule: Quarter 4. Deliverables: Complete draft report. Summary of CALFED comments. Summary of stakeholder comments.

Task 4b: Schedule: Quarter 4. Deliverables: Complete final report that has responded to comments. Fifty copies delivered to CALFED and stakeholders. Electronic file of final report including associated graphics, graphs, and GIS maps.

Task 5: Schedule: All quarters. Deliverables: progress reports and invoices.

H. COST SHARING

No specific cost sharing is proposed, although considerable and an undeterminable amount of in-kind services will be expected from project partners in data collection, review, and participation.

I. APPLICANT QUALIFICATIONS

The Yuba River watershed assessment would be conducted by the South Yuba River Citizen's League and Foster Wheeler Environmental Corporation. SYRCL members

would be involved in overall program management and administration, and public involvement. The technical components of the watershed assessment would be performed by Foster Wheeler Environmental. Foster Wheeler Environmental is a consulting firm with approximately 1,500 employees nationwide. West coast offices include Sacramento, Costa Mesa, San Diego, Portland, and Seattle. Foster Wheeler recently completed the EIR/EIS for the Headwaters Forest project that included aspects of watershed assessment. With respect to this specific project, Foster Wheeler Environmental:

- has experienced personnel in necessary disciplines such as hydrology, geology and geomorphology, aquatic ecology and fisheries, riparian habitat, stream channel assessment, water quality, terrestrial vegetation, and GIS;
- experience in using watershed assessment techniques such as the Washington
 Department of Natural Resources "Standard Methodology for Conducting Watershed
 Analysis" and the federal "Ecosystem Analysis at the Watershed Scale", as well as
 designing watershed- and project-specific assessment procedures; and
- a GIS laboratory with six, networked Sun Unix-based workstations running Arc-Info
 7.13 and dual Pentium 400 megahertz personal computer running Arc-View 3.1.

The following Foster Wheeler Environmental staff would be responsible for the technical components of the project:

- Tom Stewart, Ph.D.: team leader and watershed specialist.
- John Cardoza: engineer and hydrologist
- Brad Piehl: hydrology and water quality
- Xiaoniu Guo: statistician
- Tom Cannon: fisheries and aquatic ecology
- Brian Landau: geologist and geomorphologist
- Elizabeth Ablow: riparian habitat
- Gray Rand: terrestrial vegetation
- Mary Jo Kochel: GIS

J. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The following forms are attached:

- 1. Nondiscrimination Compliance Statement
- 2. Application for Federal Assistance, Standard Form 424
- Budget Information, Standard Form 424A
- 4. Assurances Non-construction Programs, Standard Form 424B

Foster Wheeler Environmental Corporation proposes the following modifications to the terms of the Subcontract Agreement. Foster Wheeler Environmental Corporation wishes to emphasize that it attempts to maintain a flexible approach to contract terms and will work diligently toward fulfilling the desires of CALFED Bay-Delta Program within a framework that will allow an economically feasible project.

PROPOSED MODIFICATIONS

Attachment D - Terms and Conditions

9. Indemnification

Line four, after "resulting" please insert "from the extent of Contractor's negligence,"
Line seven, after "resulting" please insert "from the extent of Contractor's negligence,"
Line eight, after "who may be" please insert "directly"

Standard Clauses - Insurance Requirements
First paragraph, line two, please delete "not less than"
First paragraph, line two, please insert "per aggregate" after "per occurrence"

Item 2.

Line two, please insert "Contractor's negligence" after "the", and delete "operation" Line two, please insert "is" after the word "contract" and delete the word "are"

Please insert the following new clauses

Contractor Liability

Notwithstanding any Article to the contrary contained in the Contract Documents, Contractor's total liability arising out of or in connection with the Contract or the Services, including without limitation any under Article[s] 7 and 9, and including any for damage to or loss of CLIENT'S property, shall in no event extend beyond one year after completion of the Services in question or exceed the total amount of compensation paid to Contractor hereunder up to the maximum amount of \$250,000. The warranties and remedies set forth in Article[s] 7 and the Y2K Language in the Additional Standard Clauses section are exclusive. Contractor makes no other warranties, express or implied, with respect to its performance under this Contract. Contractor and its employees shall in no event be liable for any special, indirect or consequential damages, including specifically but without limitation, loss of profits or revenue, loss of use of any, facility or property, including real property, cost of capital, loss of goodwill, claims of customers, or similar damages. The foregoing shall apply to the fullest extent allowed by law irrespective of whether liability of Contractor is claimed, or found to be based in contract, tort or otherwise (including negligence, warranty, indemnity and strict liability).

Force Majeure.

Consultant shall not be considered in default in the performance of its obligations hereunder to the extent that such performance is delayed by causes outside its control and not due to its fault or negligence and not reasonably foreseeable or, if foreseeable, cannot be avoided by the exercise of all reasonable efforts, including acts of civil or military authority, acts of God, acts of war, acts of government, riot, insurrection, blockages, embargoes, sabotage, epidemics, fire, flood, and/or famine.

STATE OF CALIFORMA MONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 5-95) FMC

PANY	

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICILIENME LYNN SPRAGUE	
DATE EXECUTED 4 16 99	SACRAMENTO
PROSPECTIVE CONTRACTORS SIGNATURE	T
PROSPECTIVE CONTRACTOR'S TITLE OPERATIONS MANAGE	ÉA
PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME FOOTER WHEEL	ER ENVIRONMENTAL CORPORATION

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET.
SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

- Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
- 2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
- Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
- Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
- Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
- Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation

- Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps: (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcoholand drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (I) any othernondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
- 7. Will comply, or has already compiled, with the requirements of Titles It and III of the Uniform Retocation Assistance and Real Property Acquisition Policles Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
- Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

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- 9. Will comply, as ap, leable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §974), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
- 10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
- 11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-

- Will comply with the Wild and Scenle Rivers Act of 1968 (16 U.S.C. §\$1271 et seq.) related to proteoting components or potential components of the national wild and scenic rivers system.
- Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (Identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seg.).
- 14. Will comply with P.L. 93-34B regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
- 15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
- 16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
- 17 Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
- Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE OPERATIONS MANAGER
APPLICANT ORGANIZATION	DATE SUBMITTED
FOSTER WHEELER ENVIRONMENTAL	4/16/99

Standard Form 424B (Rev. 7-97) Back

APPLICATION FOR			\$	OMB Approval No. 0348-9043
FEDERAL ASSISTA	NCE	2. DATE SUBMITTED	6/99	Applicant Identifier
1. TYPE OF SUBMISSION: Application	Preapplication	3. DATE RECEIVED B	Y STATE	State Application Identifier
Construction Non-Construction	Construction Non-Construction	4. DATE RECEIVED B	Y FEDERAL AGENCY	Federal Identifier
5. APPLICANT INFORMATION			-1	
Legal Name: FOSTER WHEELEL		CORPORATION	Organizational Unit:	
Address (give city, county, State 3947 LENNANE 50CRAMENTO, C	AVE.	cramentoco	this application (give a	number of person to be contacted on matters involving view code) - 4700 LYNN SPRAKUE
6. EMPLOYER IDENTIFICATIO	N NUMBER (FIN)	, n - p - , - , - , - , - , - , - , - , - ,		ANT: (enter appropriate letter in box)
75-2512		•	A. State	H. Independent School Dist.
S. TYPE OF APPLICATION:	*,		B. County	I. State Controlled Institution of Higher Learning
X Nev	v Continuation	Revision	C. Municipal	J. Private University
			D. Township	K. Indian Tribe
If Revision, enter appropriate let	ter(s) in box(es)		E. Interstate	L. Individual
		- C	F. Intermunicipal	M. Profit Organization
A. Increase Award B. Dec D. Decrease Duration Other	· · ·	e Duration	G. Special District 9. NAME OF FEDERA	N. Other (Specify)
			CALF	
10. CATALOG OF FEDERAL D	OMESTIC ASSISTANCE N	UMBER:	11. DESCRIPTIVE TI	TLE OF APPLICANT'S PROJECT:
			YUBA RIV	IER WATERSHED
TITLE:	•	•	1	
12. AREAS AFFECTED BY PR	OJECT (Cities, Counties, St.	ales, etc.):	- ASSESS	DENT
YUBA AND NE				
18. PROPOSED PROJECT	14. CONGRESSIONAL D	STRICTS OF:		
Start Date Ending Date	a. Applicant		b. Project	
15. ESTIMATED FUNDING:	500, 502.48		16. IS APPLICATION ORDER 12372 PR	SUBJECT TO REVIEW BY STATE EXECUTIVE POCESS?
a. Federal	\$ 500,502.		a. YES. THIS PRE	APPLICATION/APPLICATION WAS MADE
b. Applicant	\$.00		E TO THE STATE EXECUTIVE ORDER 12372 FOR REVIEW ON:
c. State	\$	00	DATE	
d. Local	\$	on .	b, No. PROGR	AM IS NOT COVERED BY E. O. 12372
e. Other	\$	36	OR PRO	GRAM HAS NOT BEEN SELECTED BY STATE VIEW
f. Program Income	\$	00	17. IS THE APPLICA	NT BELINQUENT ON ANY FEDERAL DEST?
g. TOTAL	\$ 500,50	Z .∞,48		attach an explanation.
				TION ARE TRUE AND CORRECT, THE
			HE APPLICANT AND T	HE APPLICANT WILL COMPLY WITH THE
ATTACHED ASSURANCES IF				
a. Type Name of Authorized Re		b. Title OPERATIO	HS MANAGEA	c. Telephone Number
d. Signature of Autograzed Repr				9 16- 9 2 8- 4 7 0 0
1 7	Jan Jus			4 16 199
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		ALL CONTRACTOR AND ALL CONTRACTOR AND ADDRESS OF THE ADDRESS OF TH	nelojas telode sajaji			
Grant Program Function	Catalog of Federal Domestic Assistance		Unobligated Funds		New or Revised Bud	
or Activity	Number (b)	. Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
YUBA RIVER		\$	\$	\$500,502,48	ş	\$500,502.48
NATERSHED Assessment						
A3700						
•						
Totals		\$	\$	\$ 500,502.48	\$	\$ 500 , 502.4
		32.2	(ে) :: : : : : : : : : : : : : : : : : :		y Digwer was the same	
. Object Class Categories	•	(1)	GRANT PROGRAM.	FUNCTION OR ACTIVITY (3)	(4)	Total (5)
a. Personnel		\$	\$	\$ 424,009	\$	\$ 424.009
b. Fringe Benefits	3			20321		20,321
c. Travel				6, 640		6,040
d. Equipment				22,808		22,808
e. Supplies				18, 150		18, 150
f. Contractual				_		
g. Construction						-
h. Other				6,500		6,500
i. Total Direct Ci	narges (sum of 6a-6h)			497 928		497 828
j. Indirect Charg	95			2,675		2,675
k. TOTALS (sum	of 6i and 6j)	\$	\$	\$ 500,502.48	\$	\$ 500,502.4
a construction of the second o	en e	and in the cost of		le le		de la companya de la
. Program Income	. *	\$	٦	\$ 0	, *	\$ 0

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(a) Grant Program		(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
60		(1	1	Į.
o,					
10.					
1					
12. TOTAL (sum of lines 8 - 11)		€4-	S	49	
	and well-	1612 15151 18131			
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 500,502.48	⇔	\$	↔	⇔
14. NonFederal					
15. TOTAL (sum of lines 13 and 14)					
		SE(1) E 12 E	(ISNEEDS AND SALANCE OF HIS PROJECTION STREET	EMENDED NEW PERIODS (YASIR)	
(a) Grant Program		(b) First	(c) Second	(d) Third	(e) Fourth
18. YUBA WATELSHED PROGRAM	W	\$ 500,502,48	€3	B	\$
17.					
18.					
19.					
20. TOTAL (sum of lines 16-19)		\$ 500,502.48\$	\$4	s,	\$
	III (0)		Section of the second	Application of the second section of the	
21. Direct Charges: 497 928		22. lindirect Charges:	harges: 2,675	27.5	
23. Remarks:					

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Standard Form 424A (Rev. 4-92) Page 2



FOSTER WHEELER ENVIRONMENTAL CORPORATION

April 15, 1999

Pat Ward Nevada County Board of Supervisors 950 Maidu Avenue Nevada City, CA 95959

Dear Mr. Ward:

This letter is to inform you of a proposal for CALFED funds that Foster Wheeler Environmental Corporation is submitting. Part of the CALFED proposal process is a request for notification of the counties in which proposal activities would take place. The proposal being submitted is titled "Yuba River Watershed Assessment." The proposed assessment involves the Middle and South Fork, Dry Creek, and Deer Creek.

If funded, the project would involve the following tasks: public involvement, developing a GIS database, conducting the watershed assessment, and preparing a final report. The project would focus on such issues as water quality and aquatic habitat, particularly with an orientation towards requirements for salmon and steelhead.

If you have any questions please call me (916) 928-4700.

Sincerely,

Foster Wheeler Environmental Corporation

G. Lynn Sprague

Operation Manager

3947 LENNANE DRIVE, SUITE 200, SACRAMENTO, CA 95834-1957 TEL: 916-928-0202 FAX: 916-928-0594



FOSTER WHEELER ENVIRONMENTAL CORPORATION

April 15, 1999

Dennis Poller Agricultural Commissioner, Yuba County 935 14th Street Marysville, CA 95901

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